# Surveys that work

# An introduction to using survey methods

Caroline Jarrett
@cjforms



## Let's find out about our experience

## Fill in this questionnaire

1. How many surveys have you run?NONE 1 to 5 6 to 10 more than 10

2. What is your top tip for a better survey, based on experience of writing or answering?

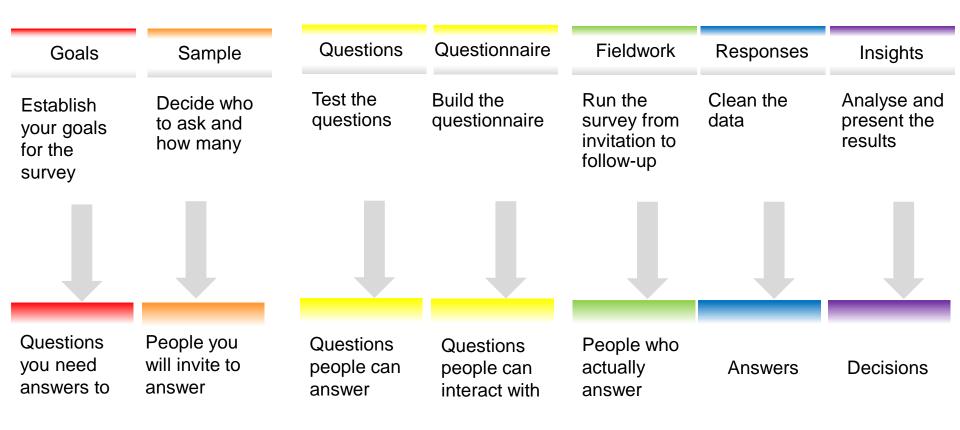
## Now work in pairs

## Try this as an interview

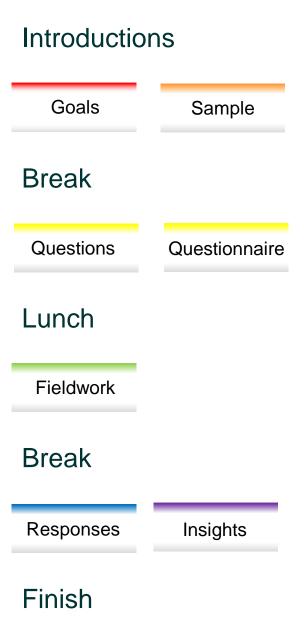
1. How many surveys have you run?NONE 1 to 5 6 to 10 more than 10

2. What is your top tip for a better survey, based on experience of writing or answering?

## The survey process



## Agenda



The survey is a systematic method for gathering information from (a sample of) entities for the purpose of constructing quantitative descriptors of the attributes of the larger population of which the entities are members.

Groves, Robert M.; Fowler, Floyd J.; Couper, Mick P.; Lepkowski, James M.; Singer, Eleanor & Tourangeau, Roger (2004). *Survey methodology*. Hoboken, NJ: John Wiley & Sons.

## The survey is a process

for gathering information from
(a sample of) entities
for the purpose of
constructing quantitative descriptors
of the attributes of the larger population
of which the entities are members.

## The survey is a process

for getting answers to questions from (a sample of) entities for the purpose of constructing quantitative descriptors of the attributes of the larger population of which the entities are members.

The survey is a process for getting answers to questions from (a sample of) people for the purpose of constructing quantitative descriptors of the attributes of the larger population of which the entities are members.

The survey is a process for getting answers to questions from (a sample of) people for the purpose of getting numbers of the attributes of the larger population of which the entities are members.

The survey is a process for getting answers to questions from (a sample of) people for the purpose of getting numbers that you can use to make decisions

To make decisions

People

The survey is a process for getting answers to questions

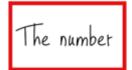
getting numbers

# The aim of a survey is to get a number that helps you to make a decision

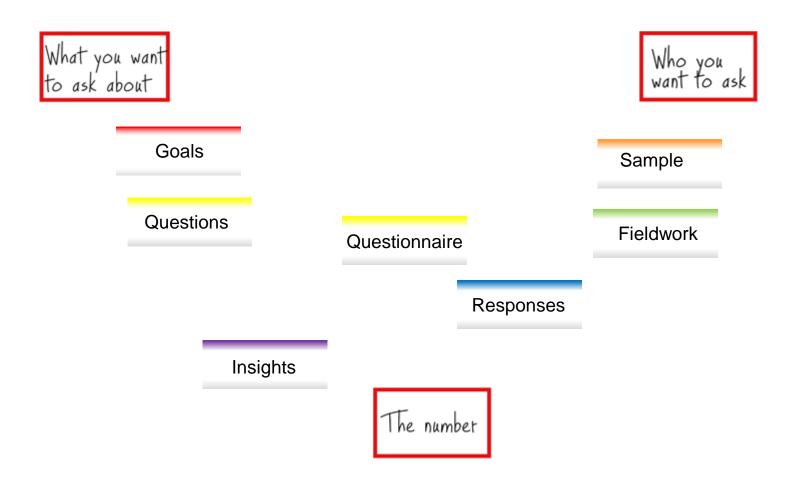
What you want to ask about

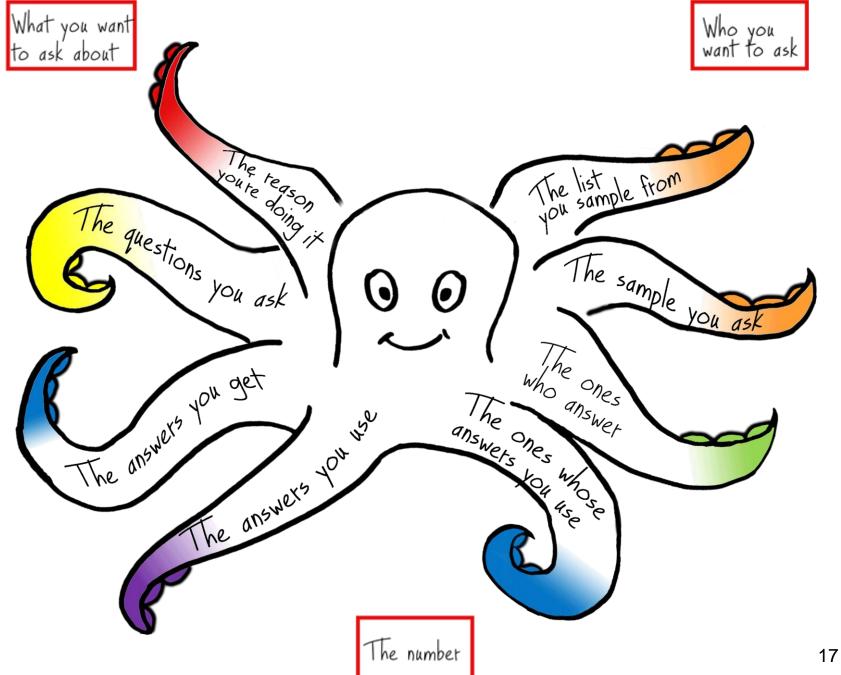
Who you want to ask



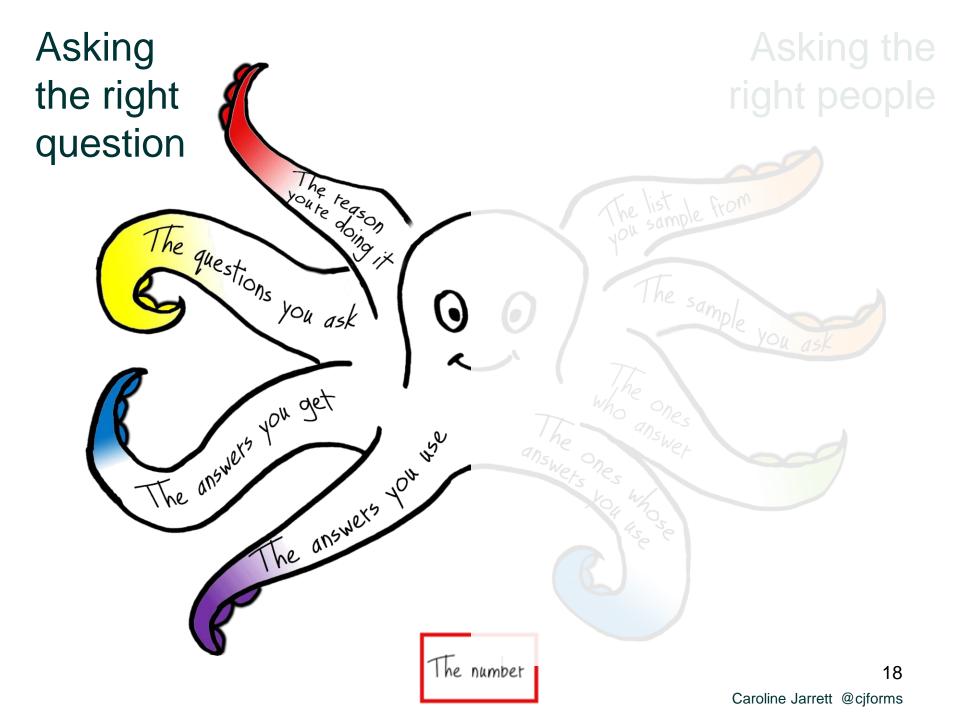


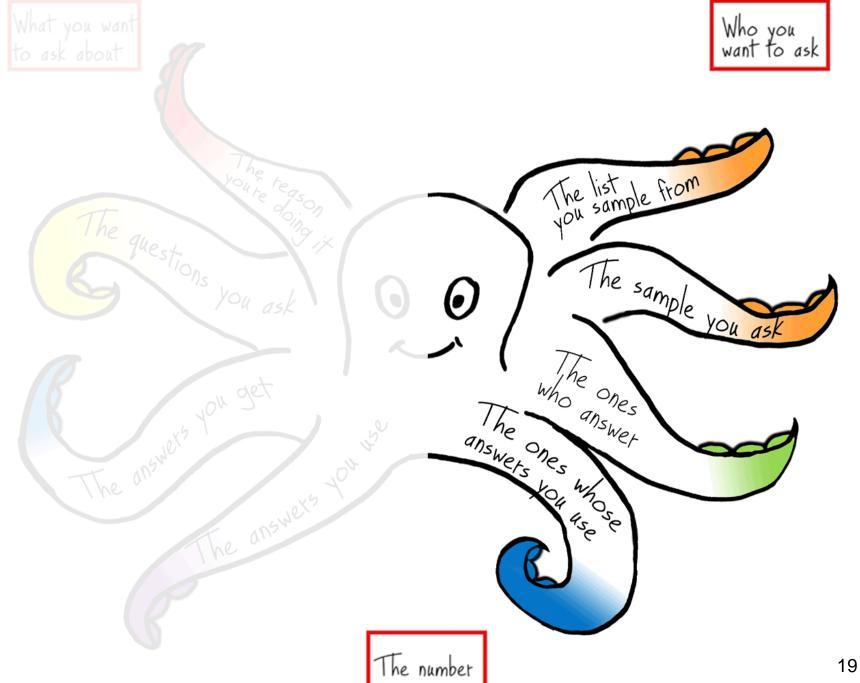
# The aim of a survey is to get a number that helps you to make a decision



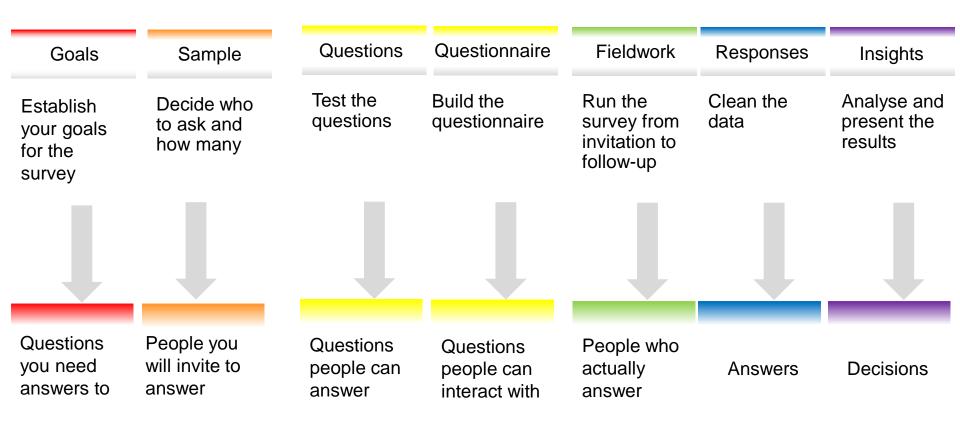


Caroline Jarrett @cjforms





## The survey process



## Agenda

#### Introductions

Goals and sample

Questions and questionnaire

12:30 Lunch

Fieldwork

Responses and Insights

16:30 Finish

Goals

## The survey process

#### Goals

Establish your goals for the survey



Questions you need answers to



🍏 Mac iPad iPhone Watch TV Music Support Q 📋

## We want to hear from you.

We would appreciate feedback on your experience at the Apple Store so we can make your next visit even better. Five minutes is all we need.

**Get Started** 



Goals

## Establish your goals for the research

What do you want to know?

Goals

## Establish your goals for the research

What do you want to know?

Why do you want to know?

### Establish your goals for the research

What do you want to know?

Why do you want to know?

What decisions will you make based on these answers?



## What are Apple's goals for the survey?

What do they want to know?

Why do they want to know it?

What decisions will they make as a result of the survey?

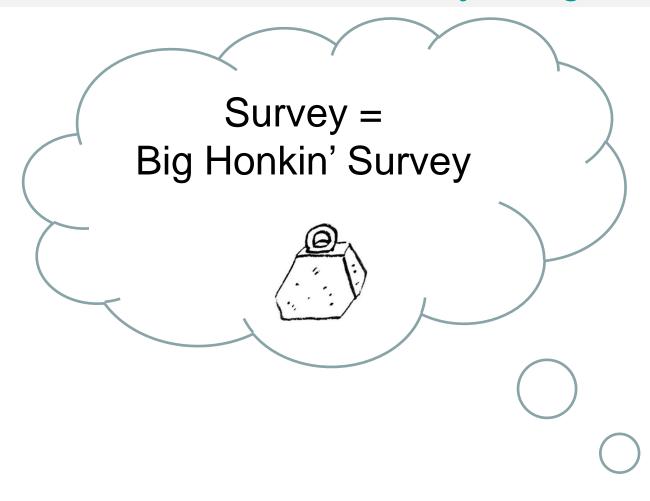
## We want to hear from you.

We would appreciate feedback on your experience at the Apple Store so we can make your next visit even better. Five minutes is all we need.





## 1950s mindset: "Ask Everything"



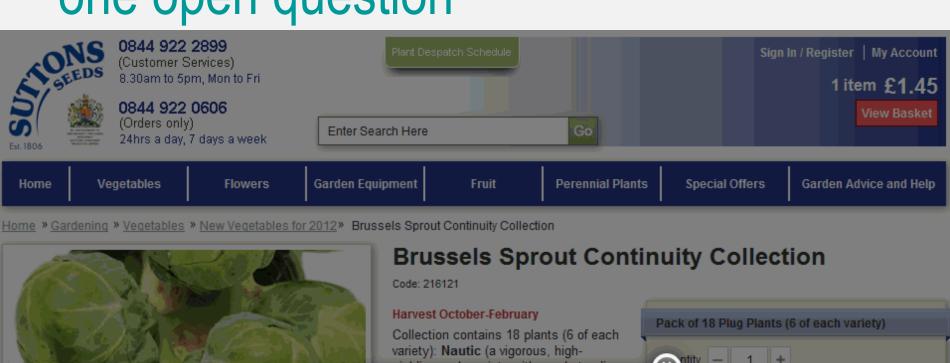
## 2016 mindset: the Light Touch survey

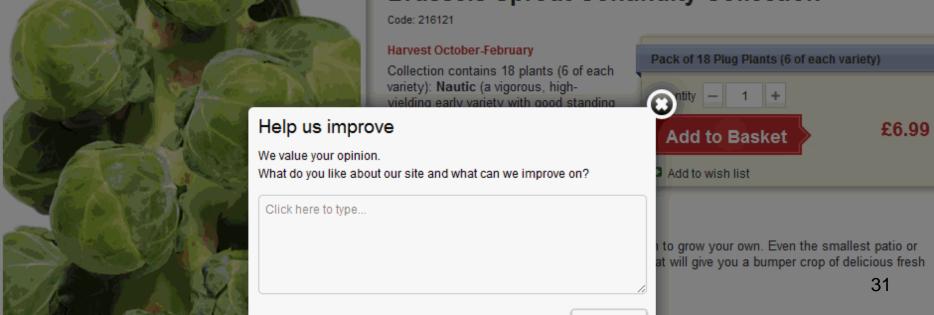
- Choose ONE question
- Find ONE person
- Ask the question, face-to-face
- See if you can make ONE decision
- Improve, iterate, increase

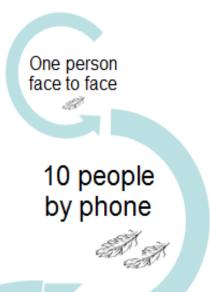


#### Goals

# This one-box survey asks one open question







One way to iterate, improve, increase

100 people by email or pop-up



Time for new question

### What's the Most Crucial Question?

- We want to ask the fewest questions that will help us to make the decision so we need to know which are the most useful questions
- Even better: know the specific Most Crucial Question
- A Most Crucial Question has a numeric answer



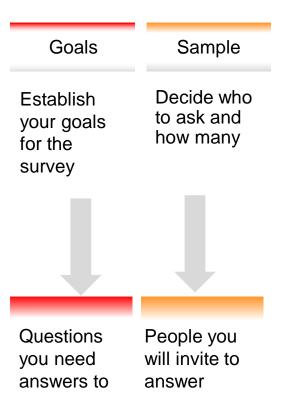


## Another way: narrow down

Useful questions

**MCQ** 

## The survey process



Sample

Asking the right people is better than asking lots of people Sample:

the list you sample from The list ple from The questions you ask The sample you as The answers you get he answers

### Choose a good list



#### Coverage error:

Mismatch between the people you want to ask and the list you choose to sample from

### Prank leaves Justin Bieber facing tour of North Korea

#### By Daniel Emery

Technology reporter, BBC News

Canadian singer Justin Bieber's has become the target of a viral campaign to send him to North Korea.

A website polled users as to which country he should tour next, with no restrictions on the nations that could be voted on.

There are now almost half a million votes to send the singer to the secretive communist nation.

The contest, which ends at 0600 on 7 July, saw North Korea move from 24th to 1st place in less than two days.



It is highly unlikely Bieber would be given permission to enter North Korea

Many of the votes are thought to originate from imageboard website 4chan, which has built a reputation for triggering online viral campaigns.

Related Stories

Sample

### Difference between response, response rate and representativeness

Concept	Definition	Example
Response	Number of answers	5,000
Response rate	Response divided by the number of invitations	10%
Representativeness	Whether respondents you get are typical of the users you want	

### Did we get answers from the right people?

Is this sample representative?

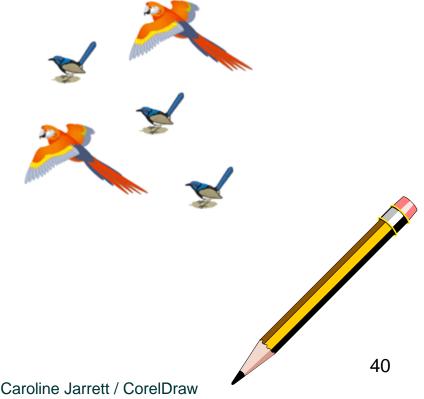


Image credit: Caroline Jarrett / CorelDraw

# Check the representativeness of your sample

Population of assorted birds



Is this sample representative?

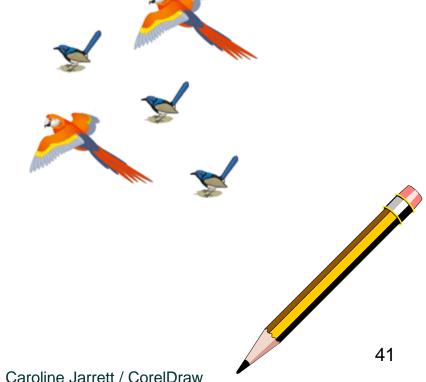
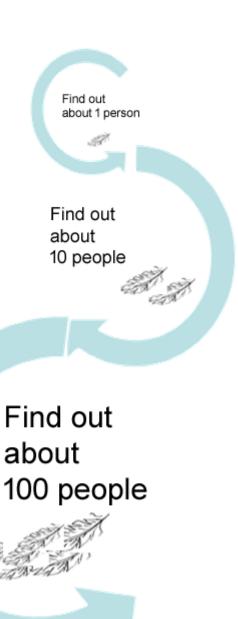


Image credit: Caroline Jarrett / CorelDraw



Iterate, improve, increase

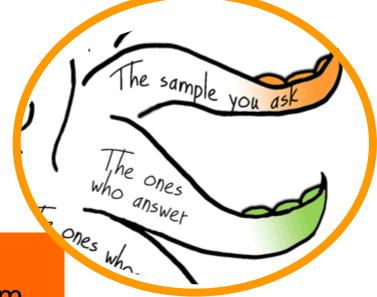
to understand the people you want to ask

# Decide how to target the correct people

- Go where they are
- Use a list
- Buy a sample
- Send and hope
- Try a 'snowball'



## Non-response error is the one that hurts



Non-response error:

The ones who answer differ from the ones you ask in a way that affects the survey statistic

### Let's try the toothpaste





Messages Vodafone

Details

Worry-Free Roaming in our Europe Zone. If you're heading further afield, you could still take your UK minutes, texts and data with you - it costs just £5 a day (exc. VAT) in our World Zone. Simply text ADD to 40508. To stop receiving texts, send STOP to 9774.

Yesterday 10:01

Hello, we'd like to ask you 3 questions about your most recent contact with Vodafone. All texts are free, and the 1st question will follow shortly

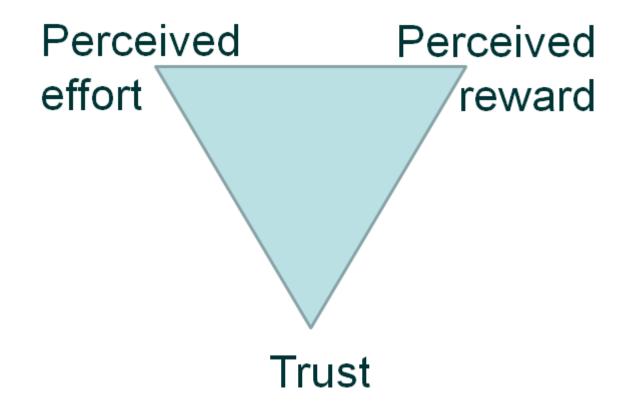
46

### I wanted to tell them something

- Perceived effort: three questions is OK
- Perceived reward: the opportunity to tell them something
- Trust: Probably enough

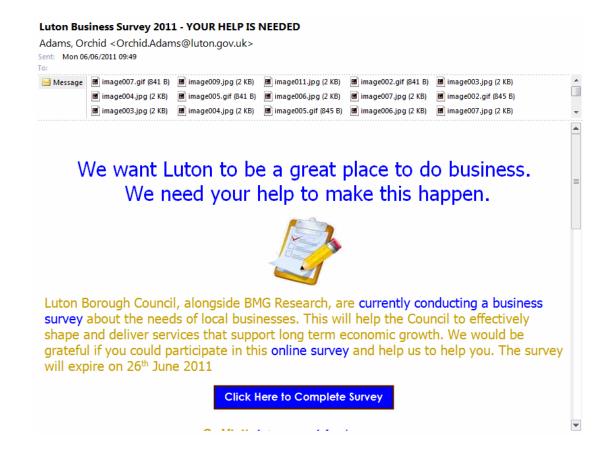
#### Sample

# Response depends on effort, reward and trust



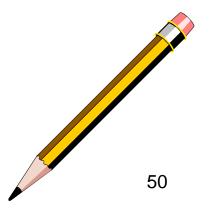


# Response relies on effort, reward, and trust



### An example survey

- Jane went shopping for a iPhone cover for her daughter's phone.
  There was very little choice, but they found one that was OK.
  Then there weren't any tills.
   "The experience was surprisingly poor for such a big brand"
- Will Jane decide to answer the survey?



👛 Mac iPad iPhone Watch TV Music Support Q 📋

### We want to hear from you.

We would appreciate feedback on your experience at the Apple Store so we can make your next visit even better. Five minutes is all we need.

Get Started





#### Your views

What is the perceived effort?

What is the perceived reward?

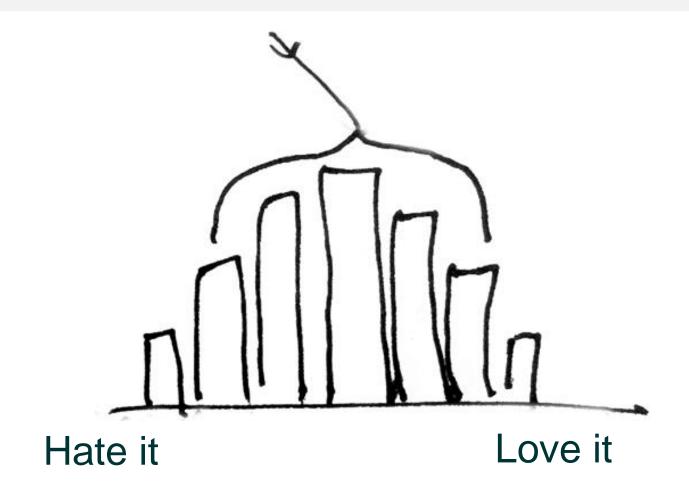
What about trust?

### We want to hear from you.

We would appreciate feedback on your experience at the Apple Store so we can make your next visit even better. Five minutes is all we need.

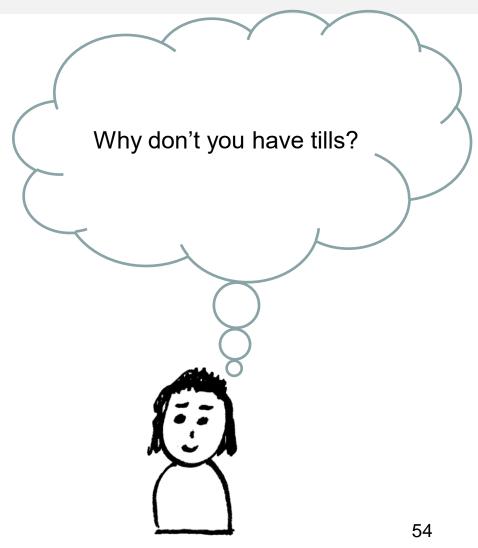


#### There's often a 'zone of indifference'



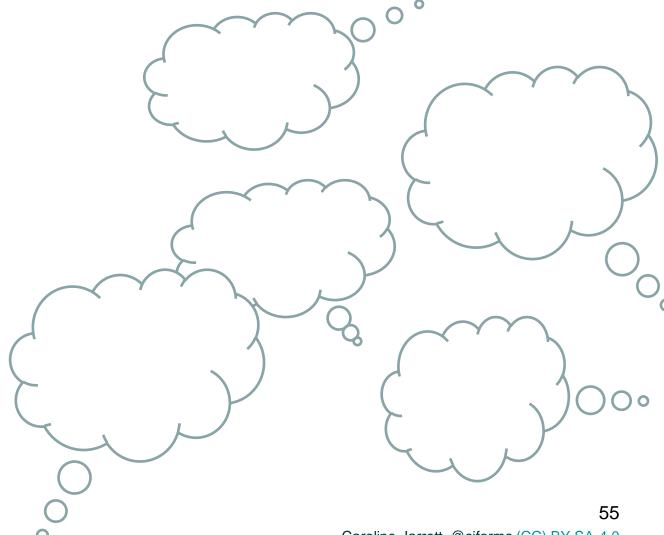
#### Jane had a question for Apple

Burning Issue



### What do people want to tell you?

Burning Issues



Sample

# Overcome the 'Zone of Indifference' by asking about the Burning Issues



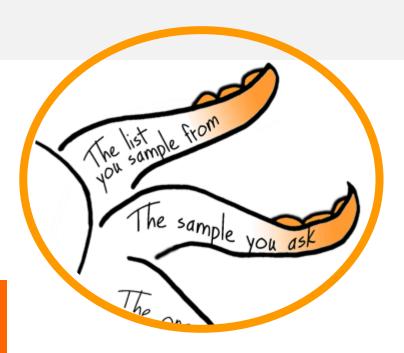
Sample

# Think about the people you want to ask

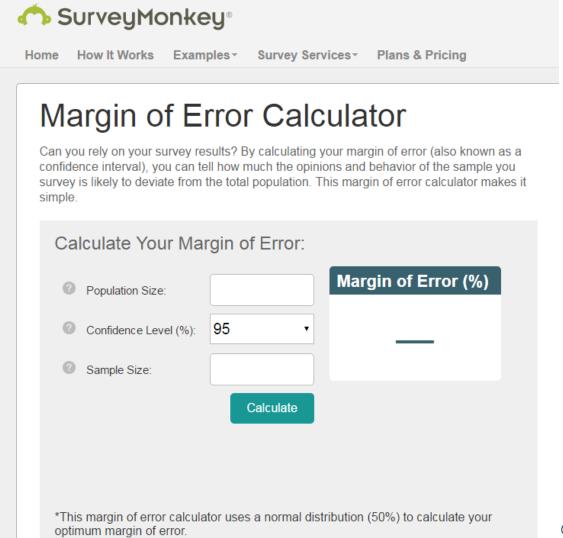
- Who are they?
- How will you find them?
- Do they want to answer your questions?
- What do they want to tell you?

# There is always sampling error

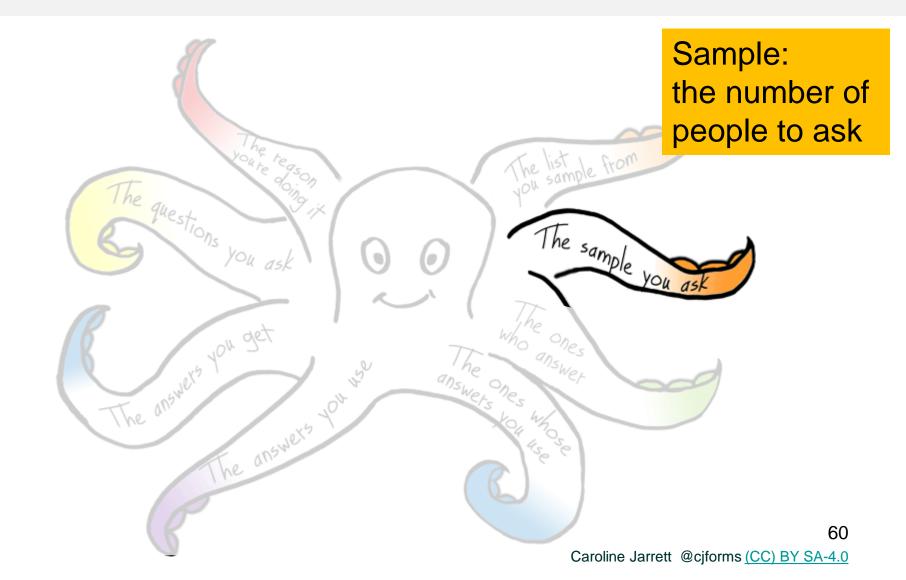
Sampling error:
Ask a sample instead of asking everyone



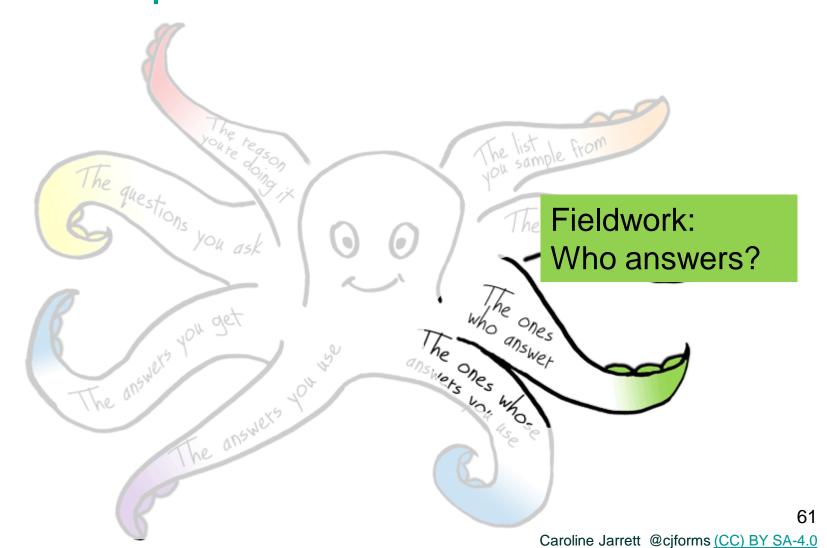
### If you get all the other decisions right, then you can calculate a margin of error



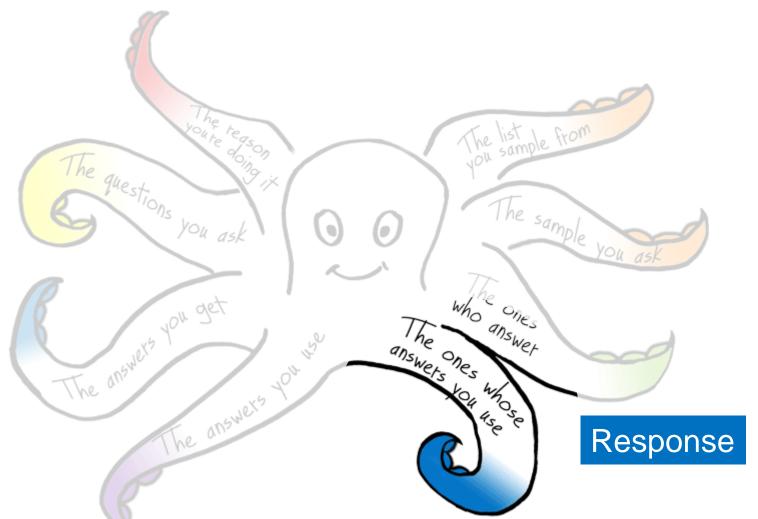
### Ask fewer people to get better response



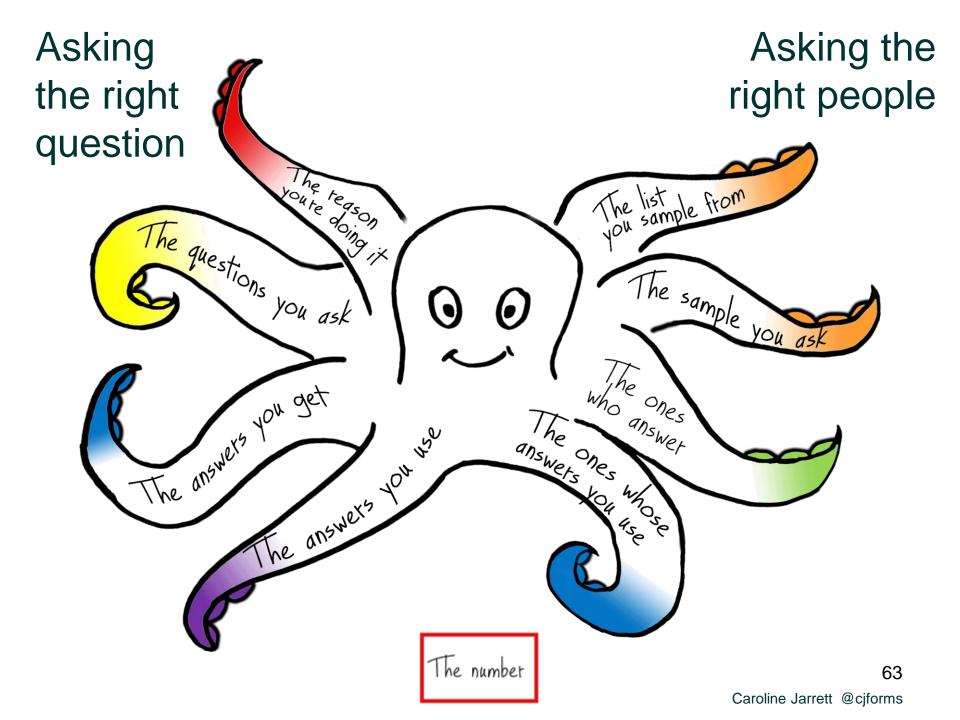
# Try mail, phone or face-to-face for better response rates



# We don't just want answers, we want representative answers



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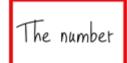




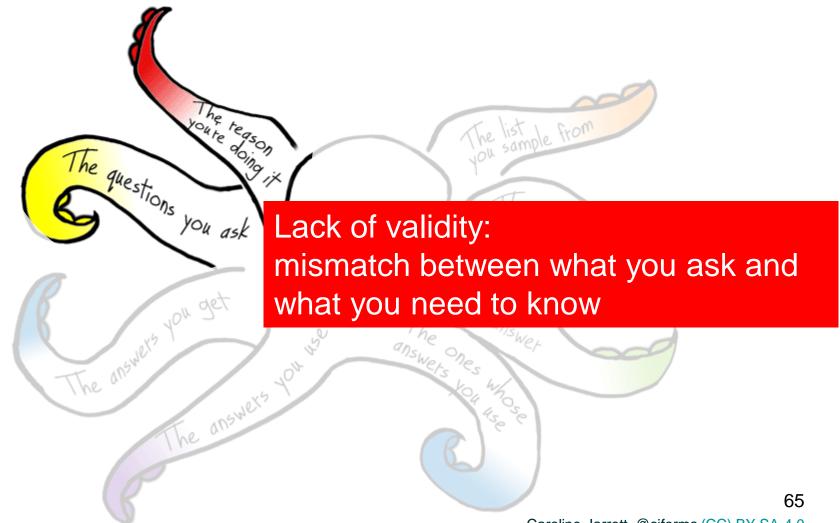
Asking one person the right question

is better than

Asking 10,000 people the wrong question



# A survey is only valid if the questions match the reason you're doing it



#### Here is a question from that survey

Are you aware that you can upgrade your contract or activate an iPhone on a rate plan with a mobile carrier directly at the Apple Store?

Most Crucial Question?

Apple

#### Most Crucial Question meets Burning Issue

Are you aware that you can upgrade your contract or activate an iPhone on a rate plan with a mobile carrier directly at the Apple Store?

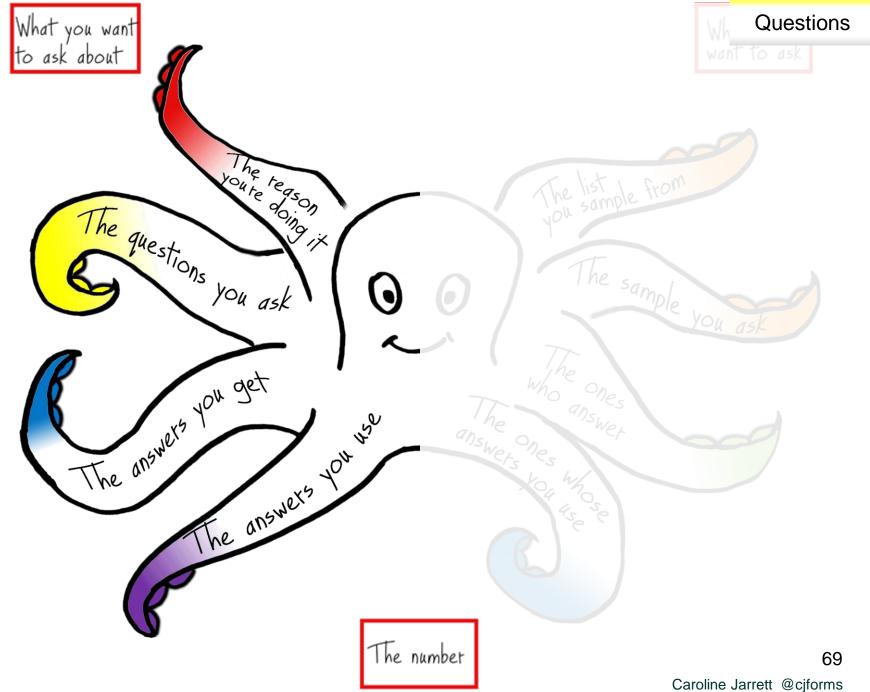
Why don't they have tills?

Apple



### The survey process

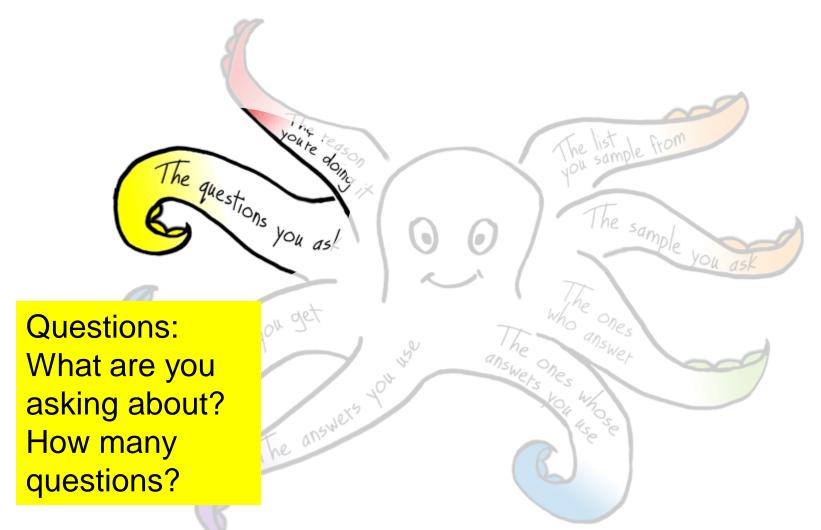
Questions Goals Sample Test the Decide who Establish questions to ask and your goals how many for the survey Questions People you Questions you need will invite to people can answers to answer answer



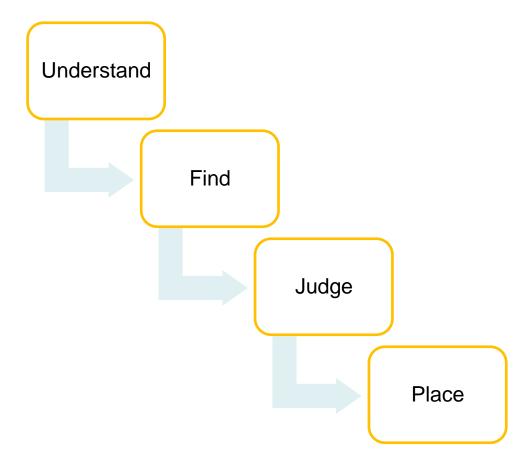
In your last five days at work, what percentage of your work time do you estimate that you spent using publicly-available online services (not including email, instant messaging, and search) to do your work using a work computer or other device?

%

### Helps a lot if you ask good questions



# There are four steps to answer a question

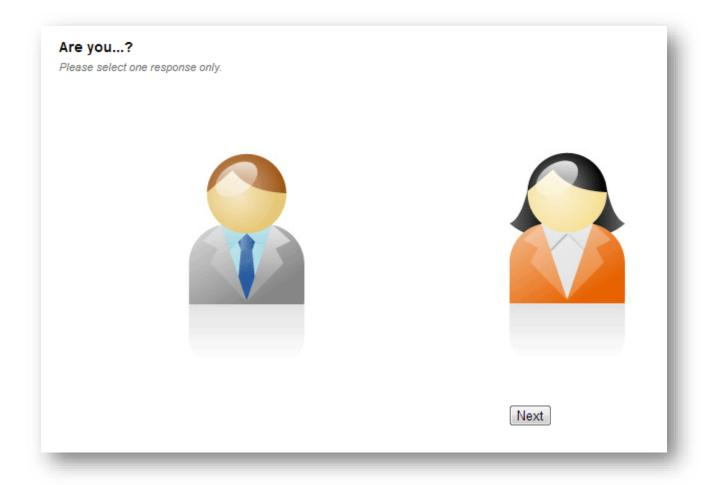


# There are four steps to answer a question

Step	A good question
1. Read and understand	is legible and makes sense
2. Find an answer	asks for answers that we know
3. Judge the answer	asks for answers we're happy to reveal
4. Place the answer	offers appropriate spaces for the answers

#### Questions

## Four step examples: 1: read and understand

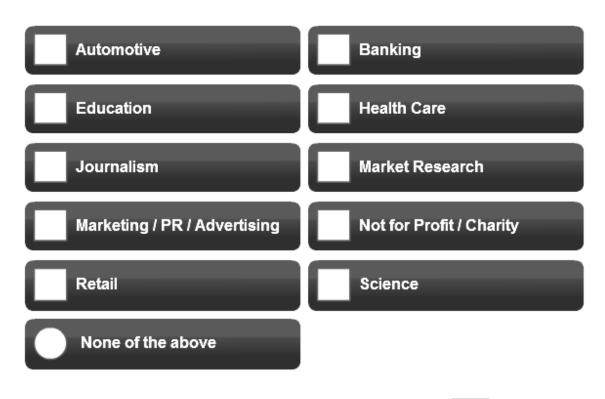


#### Questions

## Four step examples: 1: read and understand

Sometimes we look for people who work in particular industries. Do you work in any of the following?

Please select all that apply.



Next

## Four step examples: 2: find the answer

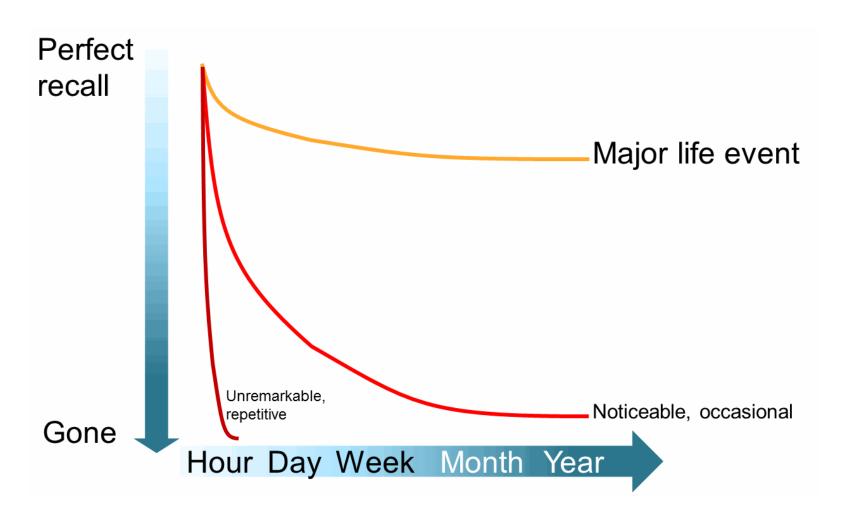
#### **Question 25**

In your **last five days at work**, what percentage of your work time do you estimate that you spent using publicly-available online services (not including email, instant messaging, and search) to do your work using a work computer or other device?

In your last five days at work, what percentage of your work time do you estimate that you spend using publicly-available online services (not including email, instant messaging and search) to do your work using a work computer or other device?



### The approximate curve of forgetting



Questions

# Four step examples: 3: judge the answer

- **★11.** I think it is safe to challenge the way thing are done in
- Strongly agree
- Agree
- Neither
- Disagree
- Strongly disagree

# Four step examples: 4: place the answer

#### Where do you currently live?

Please make a selection on the map.



Please indicate to which occupational group the Chief Income Earner in your household belongs, or which group fits best.

This could be you: the Chief Income Earner is the person in your household with the largest income.

If the Chief Income Earner is retired and has an occupational pension please answer for their most recent occupation.

If the Chief Income Earner is not in paid employment but has been out of work for less than 6 months, please answer for their most recent occupation.

Semi or unskilled manual work  (e.g. Manual workers, all apprentices to be skilled trades, Caretaker, Park keeper, non-HGV d	river, shop assistant)	
Skilled manual worker  (e.g. Skilled Bricklayer, Carpenter, Plumber, Painter, Bus/ Ambulance Driver, HGV driver, AA	patrolman, pub/bar worker, etc)	
Supervisory or clerical/ junior managerial/ professional/ administrative  (e.g. Office worker, Student Doctor, Foreman with 25+ employees, salesperson, etc)		
Intermediate managerial/ professional/ administrative (e.g. Newly qualified (under 3 years) doctor, Solicitor, Board director small organisation, middle principal officer in civil service/local government)	e manager in large organisation,	
Higher managerial/ professional/ administrative (e.g. Established doctor, Solicitor, Board Director in a large organisation (200+ employees, tope employee))	level civil servant/public service	
Student		
Casual worker - not in permanent employment	——Understand	
Housewife/ Homemaker	— Understand	
Retired and living on state pension	Find	
Unemployed or not working due to long-term sickness	ludao	
Full-time carer of other household member	Juuge	
Other	——— Judge ——— Place	

# Write a better version of this question

In your last five days at work, what percentage of your work time do you estimate that you spent using publicly-available online services (not including email, instant messaging, and search) to do your work using a work computer or other device?

%

On your most recent working day, what percentage of time did you spend using the Internet?

%

#### Do you use the Internet for your work?

Yes

No

Other

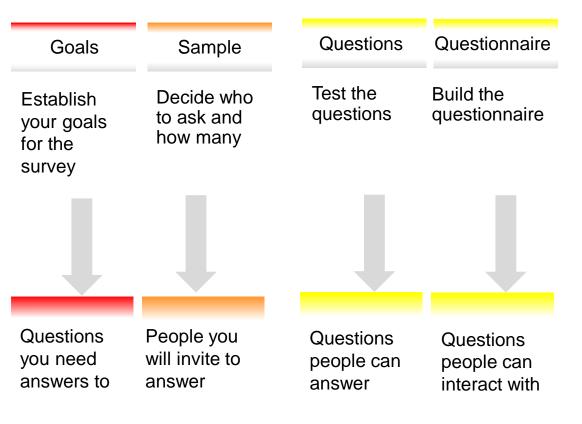


### Write good questions

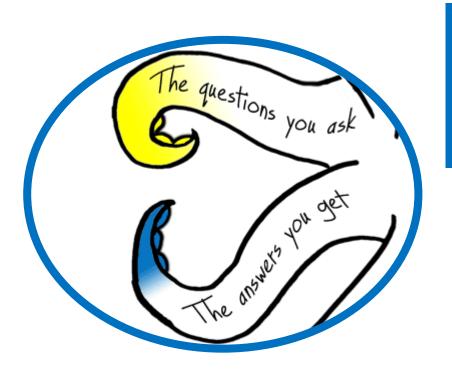
- Mix question types: choice and open
- Avoid leading questions
- Present one question at a time
- Keep positive; negatives are harder to understand
- Ask questions that users can answer



### The survey process

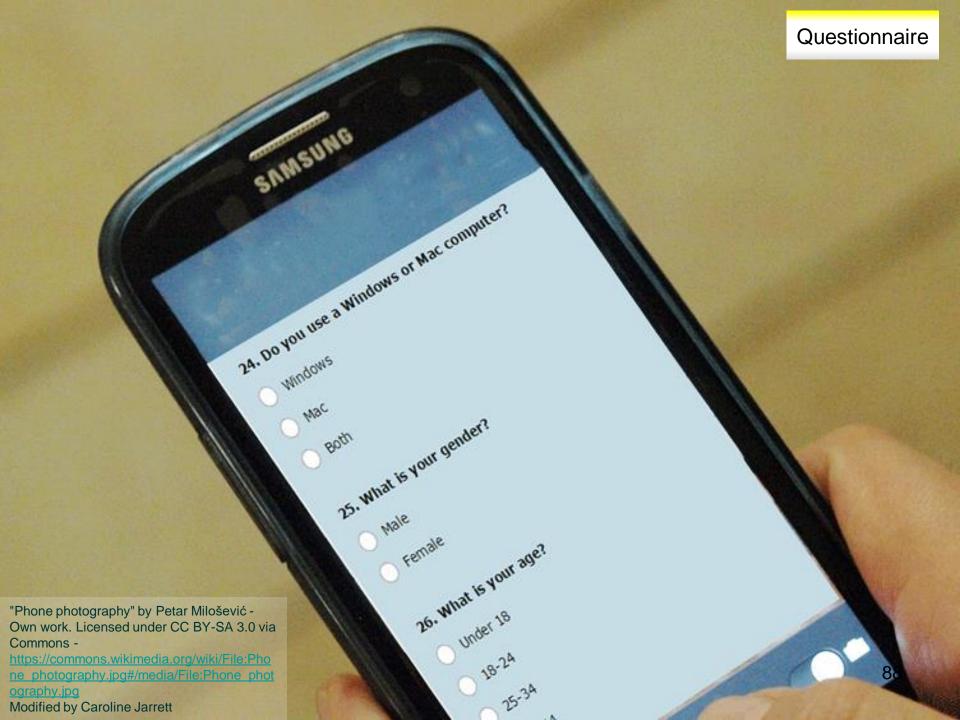


### A good question gets good answers



Measurement error:
Mismatches between
the questions you ask and
the answers that people give you

24. Do you use a Windows or Mac computer?		
Windows		
○ Mac		
O Both		
25. What is your gender?		
○ Male		
○ Female		



## Tip

#### Always allow for 'other'



Design by @RickyBuchanan; t-shirt from nopitycity.com or zazzle.co.uk

## "Place the answer" is also about using the right widget to collect the answer

Use	For
Radio buttons	A single known answer
Check boxes	Multiple known answers
Text boxes	Unknown answers

# Likert had several types of response format in his scales

13. How much military training should we have?

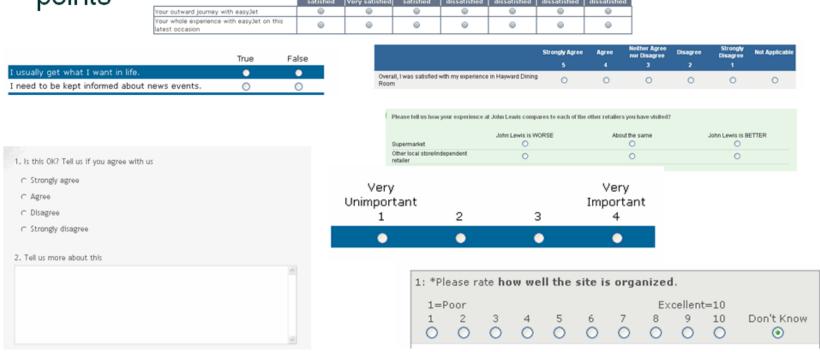
(a) We need universal compulsory military training.
(b) We need Citizens Military Training Camps and Reserve Officers Training Corps, but not universal military training.
(c) We need some facilities for training reserve officers but not as much as at present.
(d) We need only such military training as is required to maintain our regular army.
(e) All military training should be abolished.
(1)
(2)
(3)
(4)
(5)

17. The United States, whether a member or not, should co-operate fully in the humanitarian and economic programs of the League of Nations.

Strongly
Approve Approve Undecided Disapprove Disapprove (5) (4) (3) (2) (1)

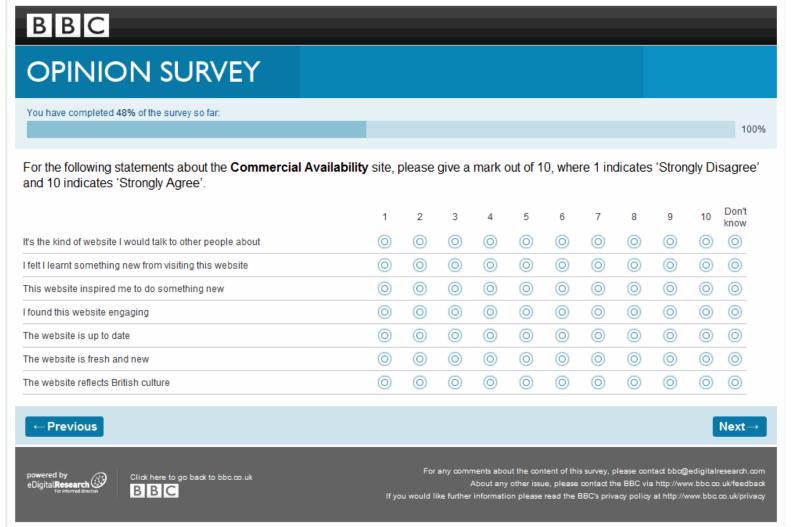
### You can find an academic paper to support almost any number of response points

Krosnick and Presser refer to ~87 papers on response
 points





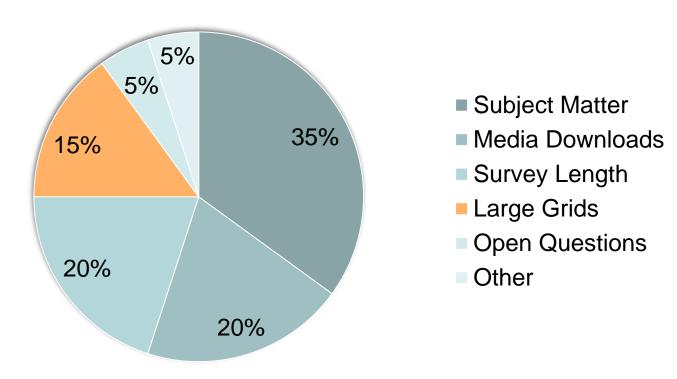
# Grids are often full of problems at all four steps





# Grids are a major cause of survey drop-out

Total incompletes across the 'main' section of the questionnaire (after the introduction stage)

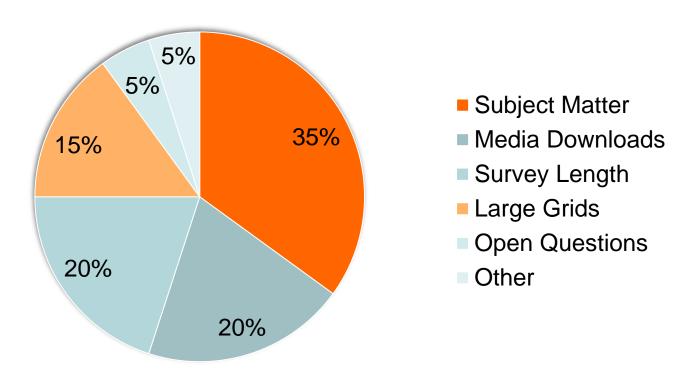


Source: Database of 3 million+ web surveys conducted by Lightspeed Research/Kantar 94
From Coombe, R., Jarrett, C. and Johnson, A. (2010) "Usability testing of market research surveys" ESRA Lausanne



### But it's the topic that matters most

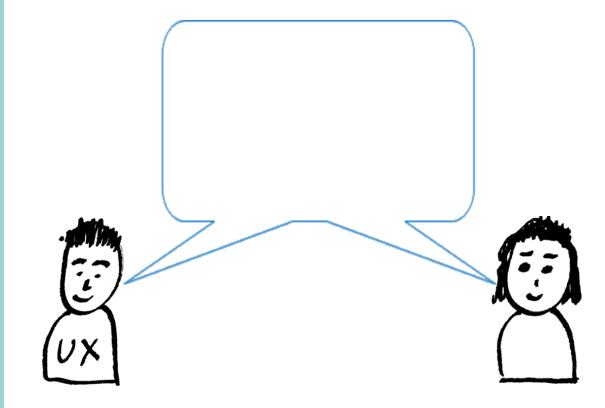
Total incompletes across the 'main' section of the questionnaire (after the introduction stage)



Source: Database of 3 million+ web surveys conducted by Lightspeed Research/Kantar 95 From Coombe, R., Jarrett, C. and Johnson, A. (2010) "Usability testing of market research surveys" ESRA Lausanne

### Tip

# Test your questions by interviewing in context

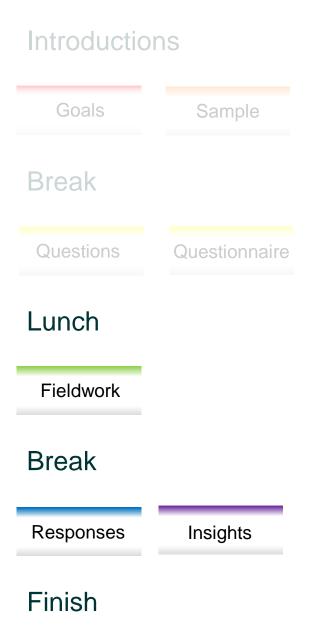


### Your answers to this survey are important for our work



But what's in it for me? And I'm really ready for a break.

### Agenda







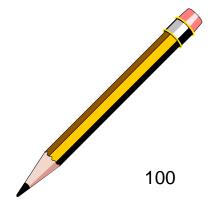


Goals

Goals and sample for the surveys

Sample

- We've had this request for help with a survey
- We'll be having a meeting to discuss the survey
- Decide on the topics you'll want to discuss at the meeting
- Also, prepare a suggestion for the Most Crucial Question



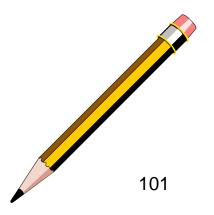
#### Write a good question

We have discussed some possible questions

Decide on the question you will ask

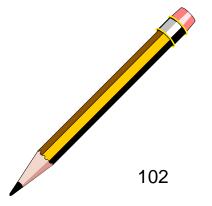
Check that users can:

- Read and understand it
- Find the answer
- Judge the answer

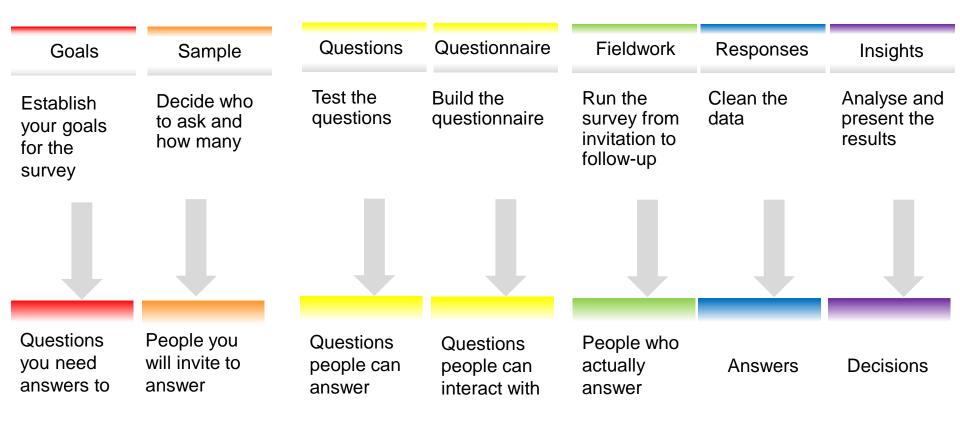


### Make a questionnaire

Make a paper version of your questionnaire (We'll be testing the questionnaires a bit later)



### The survey process



### The survey process

#### **Fieldwork**

Run the survey from invitation to follow-up



People who actually answer

105

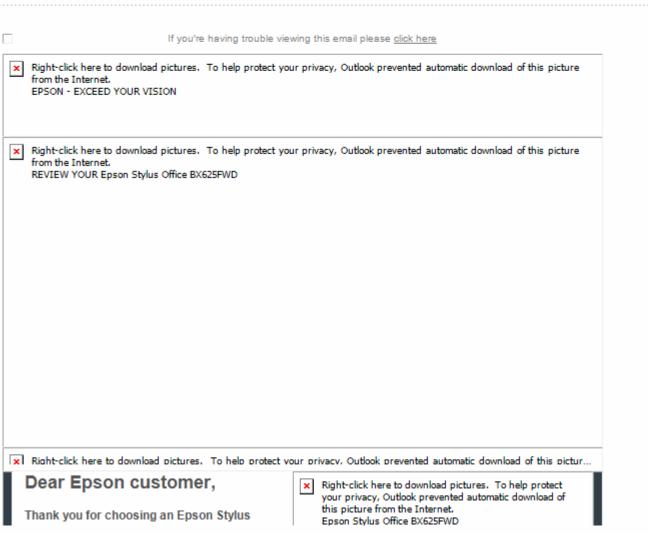
#### Dear Epson Customer, review your Epson Stylus Office BX625FWD

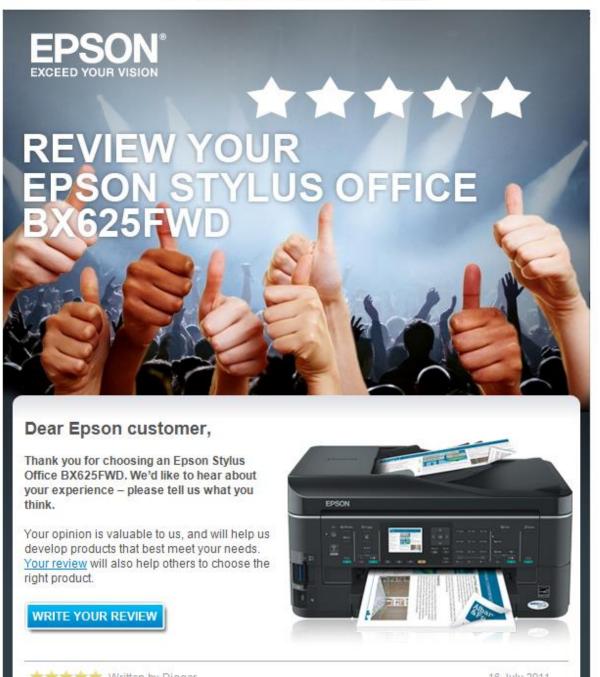
Epson UK <epsonnewsletter@info.epson-europe.com>

3 Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

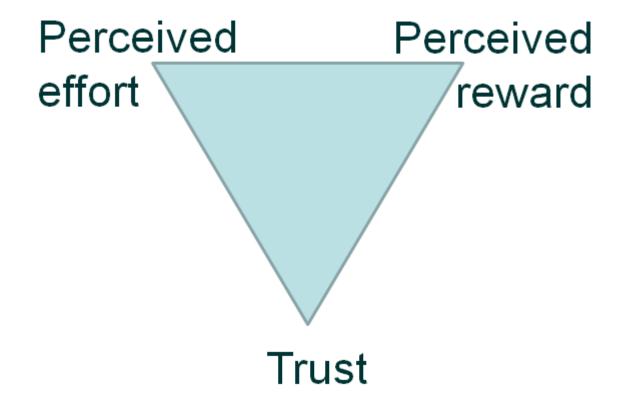
Sent: Fri 14/10/2011 09:29

To: caroline.jarrett@effortmark.co.uk





# Recap: Response relies on effort, reward, and trust



### The elements of a good invitation

#### Trust:

- Say who you are
- Say why you've contacted this person specifically

#### Perceived reward:

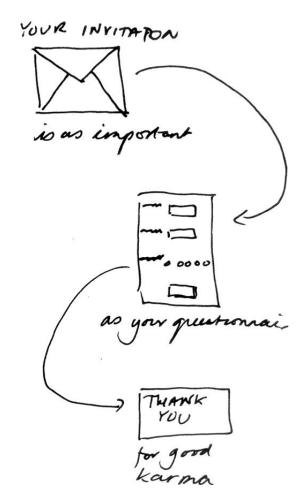
- Explain the purpose of the survey
- Explain why this person's responses will help that purpose
- If there is an incentive, offer it

#### Perceived effort:

- Outline the topic of the survey
- Say when the survey will close
- Do NOT say how long it will take

sure that you know the answer)

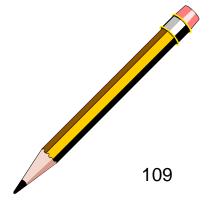
(unless you have tested the heck out of it and are extremely



## Write the invitation and thank-you

#### Hints:

- the invitation can be part of the questionnaire
- thank-you is on a separate page



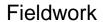
#### Test it: pilot study

- Run the survey from invitation to the follow-up
- Look for mechanical problems like wrong link in the invitation, no thank-you page
- Find out what your response rate is so that you can work out your sample size

"If you don't have time to do a pilot study, you don't have time to do the survey"

#### Test it





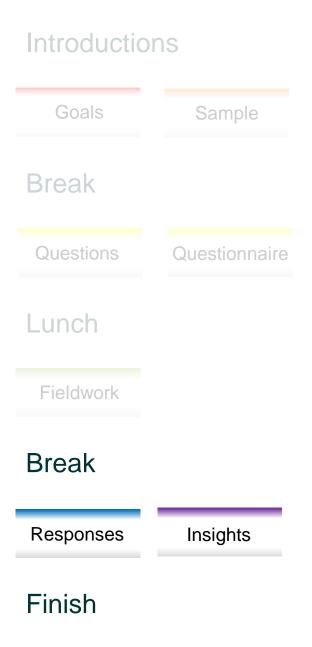
#### Report back on your questionnaire



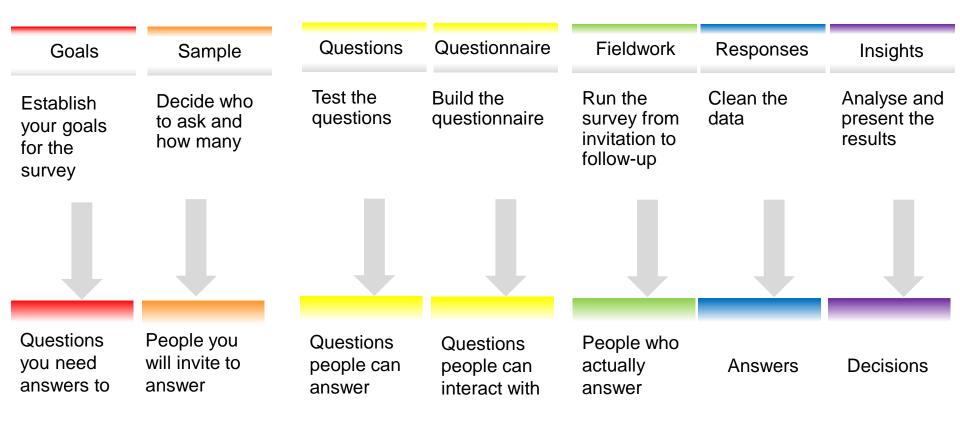
#### Think about the test and iterate

- Are the people you tested with representative?
- Did you test the whole survey
  - From invitation to follow up?
  - Including the analysis of responses?
  - Including finding out whether you can make the decision?
- What do you need to change for the next version?

### Agenda



#### The survey process



### The survey process

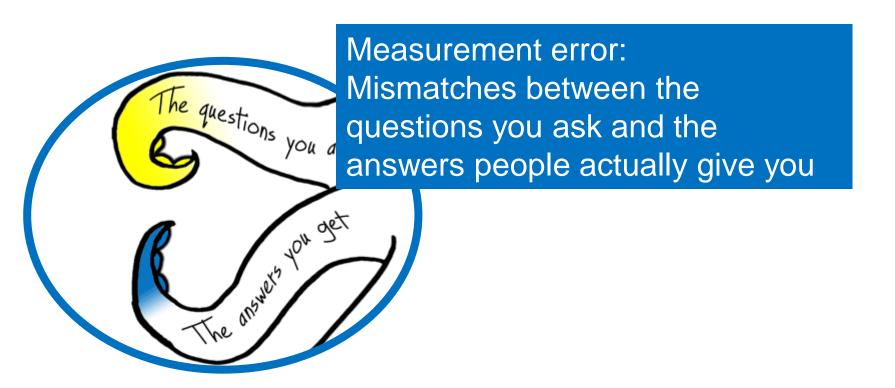
Responses

Clean the data

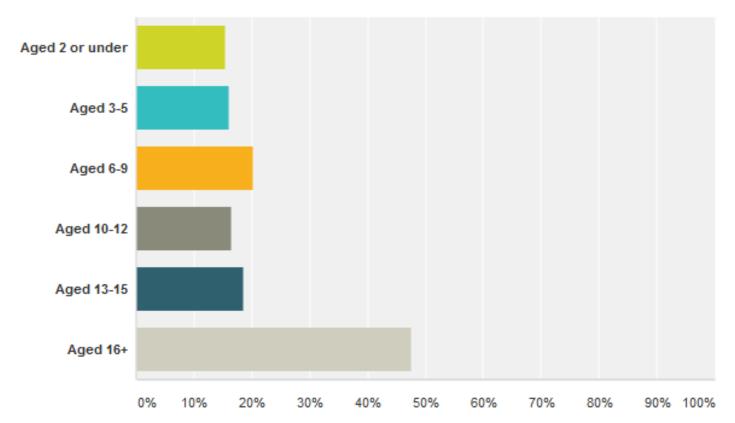


**Answers** 

# The answers that you get will tell you whether you had good questions



### Are you a parent or guardian of a child in any of the following age bands (please tick all that apply)?



#### Clean your data

- Look for gaps and missing entries
- Remove any (unintended) duplicate responses
- Read the answers to make sure that they make sense compared to the questions



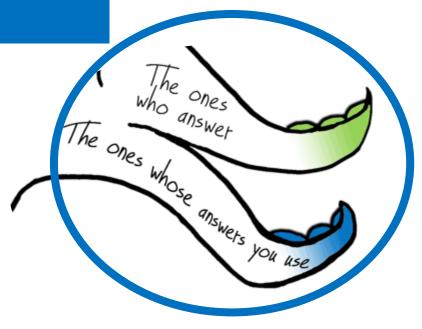
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#### Decide whose answers to include

#### Adjustment error:

Problems when deciding whether to include or exclude someone's

answers



#### Look after your data

- Data analysis can take a long time;
   you won't want to repeat it
  - Make copies of your data, especially before any drastic change
  - 'Undo' doesn't always work on large files
- Make notes of what you did
  - It helps if you have to defend your conclusions
  - It's hard to remember the details a year later



### Decide what to do when people have skipped questions or dropped out

- 1. Remove the whole of that person's response
- 2. Use the partial responses, and accept that your number of responses is lower for some questions
- 3. Calculate an "imputed value"
  - Include a flag showing that the value is calculated
  - Estimate the most likely value using the other data

If you're not a statistician, you might need to find one to help with this

Responses

### If you're losing people, have you still got representativeness?





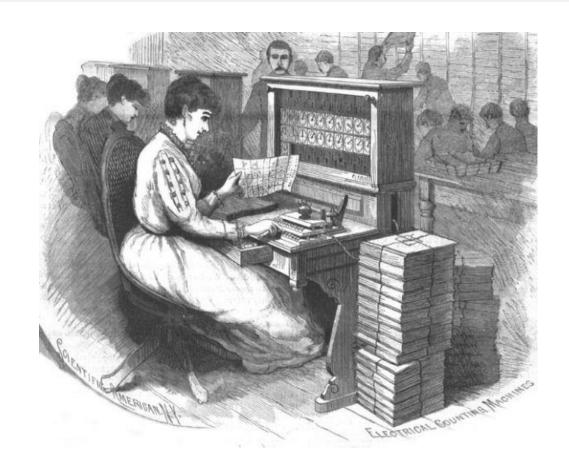
#### You can interpret data well – or poorly

Processing error: Bad choices about how to interpret the answers



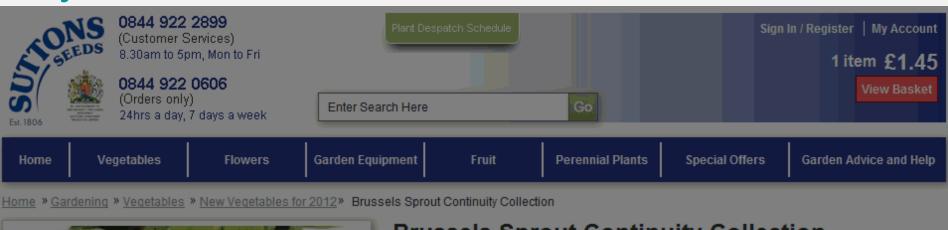
@cjforms

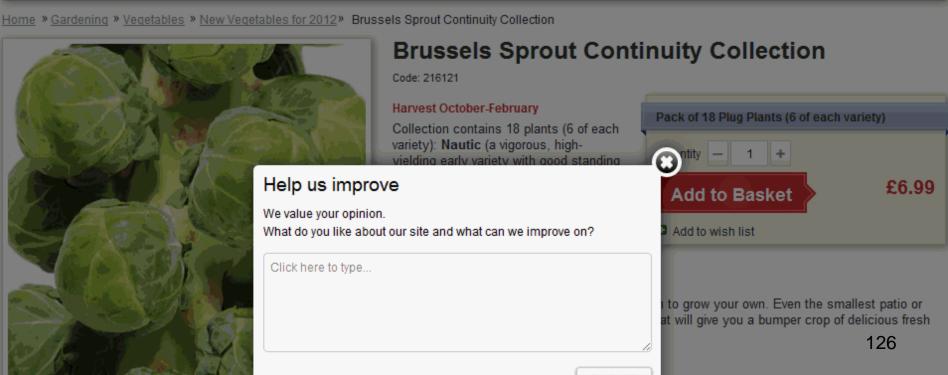
### Typing in the answers = coding



#### Responses

### If you ask for answers, you have to read and think about them





- A survey asked 'where do you live?'
   It had a free text box for countries outside the UK.
- These are example answers.
   How would you code them for processing?

CZ
Czech
Czech Republic
DEMOCRATIC REPUBLIC OF CONGO
Denmark
Dhaka, Bangladesh



My coding answers

CZ	Czech Republic
Czech	Czech Republic
Czech Republic	Czech Republic
DEMOCRATIC REPUBLIC OF CONGO	Democratic Republic of Congo
Denmark	Denmark
Dhaka, Bangladesh	Bangladesh



Some more answers from the same survey.
 How would you code them for processing?

Dubai, UAE

**Dubai, United Arab Emirates** 

E Africa

**Ecuador** 

Egypt

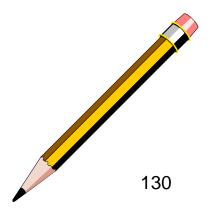
Egypt and we have an office in London

el salvador



My coding answers

Dubai, UAE	United Arab Emirates
Dubai, United Arab Emirates	United Arab Emirates
E Africa	Africa
Ecuador	Ecuador
Egypt	Egypt
Egypt and we have an office in London	Egypt
el salvador	El Salvador



#### Some more examples

Home is in Thailand currently working in Vietnam on Temporary Residence Card

I am consultant/engineer and I work in Spain and Portugal.

KYRGYZSTAN NOW IS IN KAZAKHSTAN

Live in North East England but live in Makeni, Sierra Leone for about 4 months of every year

No fixed abode at present but mainly in Turkey, Malaysia and Thailand

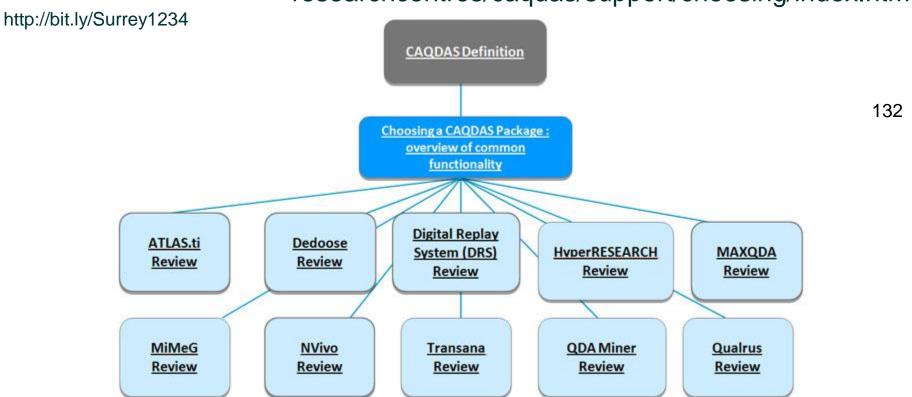
Responses

## CAQDAS tools are available (but are a big challenge)

Before buying one, read this site:

http://www.surrey.ac.uk/sociology/research/

researchcentres/caqdas/support/choosing/index.htm



# Wordle from a survey on usability certification

## certification education opportunities of reaction opportunities oppo



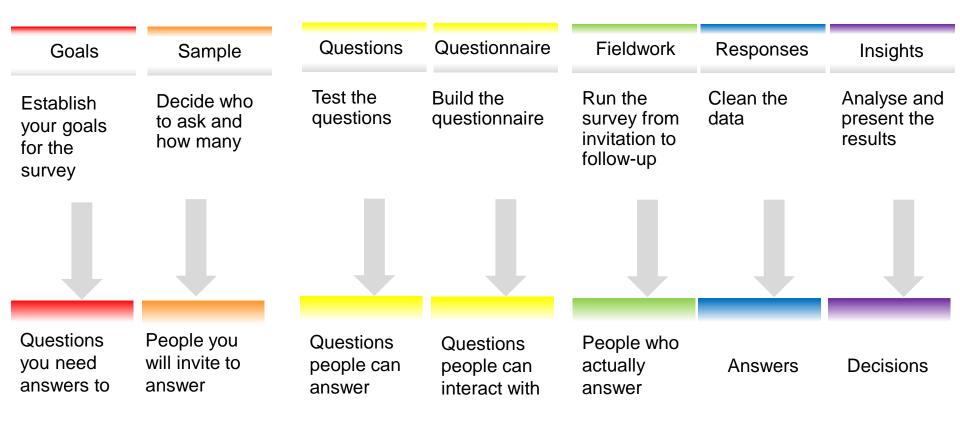
#### Wordle.net example: in favour of Facebook



### Another: against Facebook



#### The survey process



#### The survey process

Insights

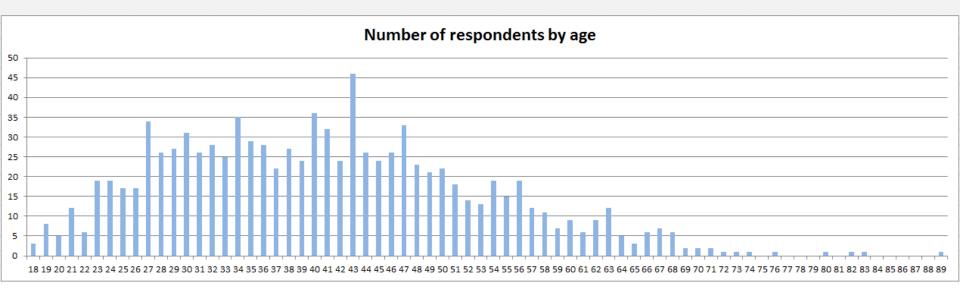
Analyse and present the results



**Decisions** 

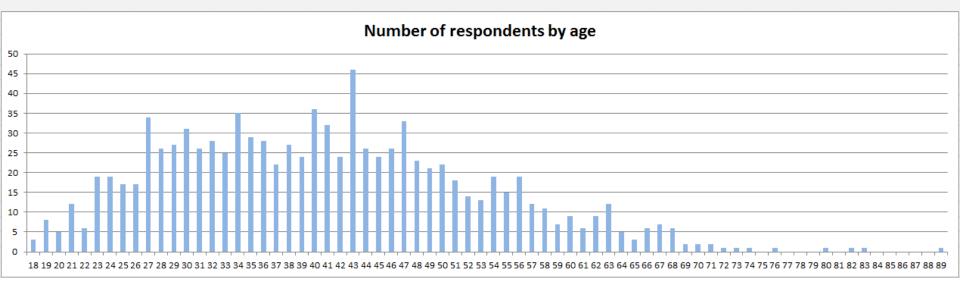


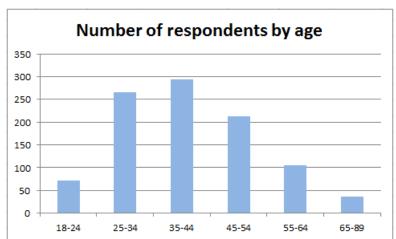
#### Explore your data and ask questions



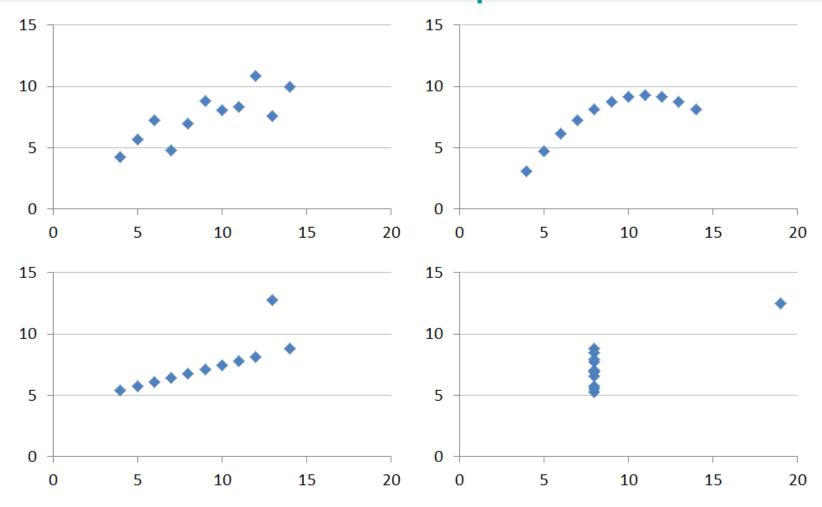


#### Explore your data and ask questions





### Use graphs and charts to understand relationships in the data



#### Two datasets, same summaries

• X Mean: 54.26

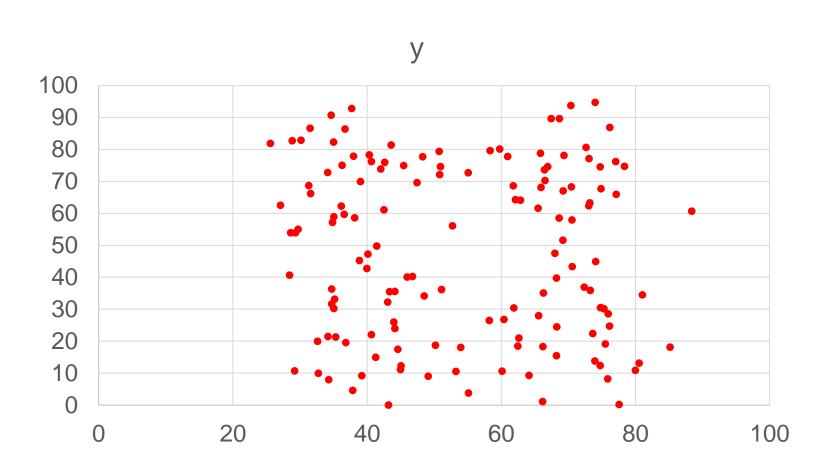
• Y Mean: 47.83

• X SD: 16.76

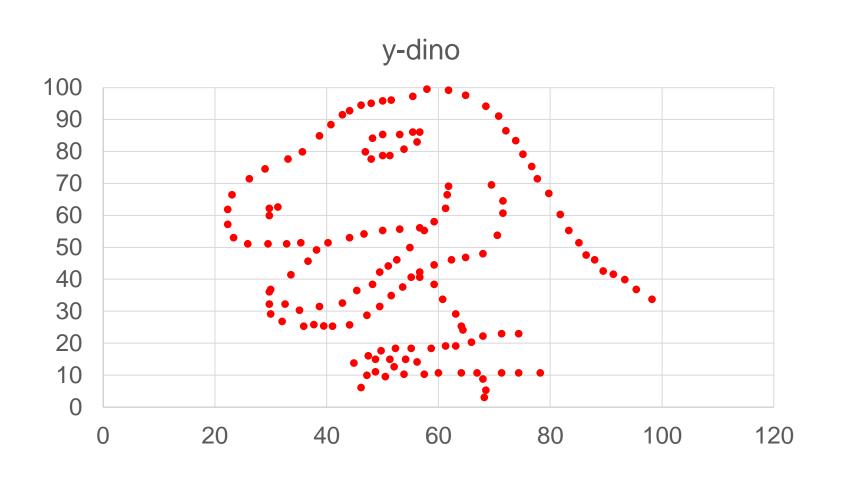
• Y SD: 26.93

• Corr.: -0.06

#### Justin Matejka's dataset



#### Alberto Cairo's dataset



Insights

## Use descriptive statistics to explore numerical data

- Most seen for statistics
  - Mean (arithmetic average)
  - Standard deviation (spread of answers)
- Useful for thinking about the data
  - Range (lowest to highest)
  - Mode (most common answer)

Insights

### Dealing with rating questions

#### A 'Like / Dislike' question got these responses

Strongly dislike	2
Dislike	6
Neither dislike nor like	14
Like	31
Strongly like	13

Total responses 66

Please work out:

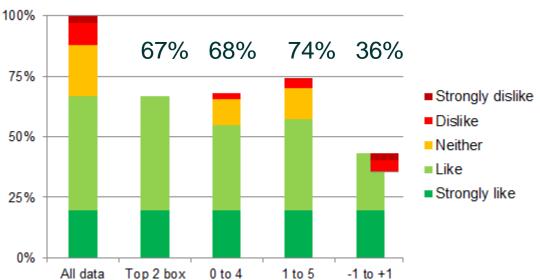
the percentage of respondents who 'like'



# There are many ways to combine ratings into means and percentages

- 47%
- 67%
- 68%
- 74%
- 36%

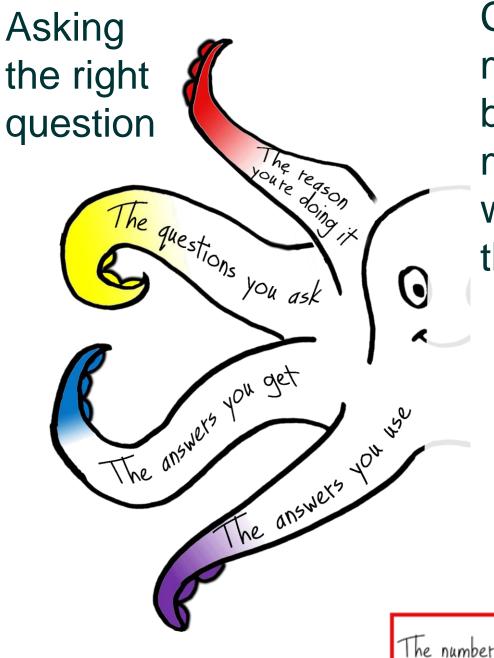
- 31 ticked 'like' so 31/66 = 47%
- 'Top box' / 'top 2 box' uses the positive responses
- '0 to 4' weights responses: 0%, 25%, 50%, 75%, 100%
- '1 to 5' weights responses: 1, 2, 3, 4, 5 (then divide by 5)
- '-1 to 1' weights responses: -100%, -50%, 0, 50%, 100%



#### Insights

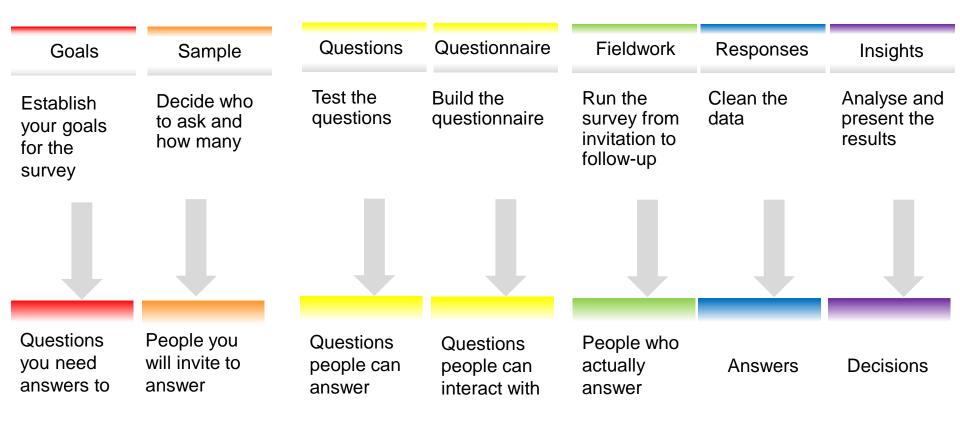
### Net Promoter Score<sup>™</sup> has a special analysis method



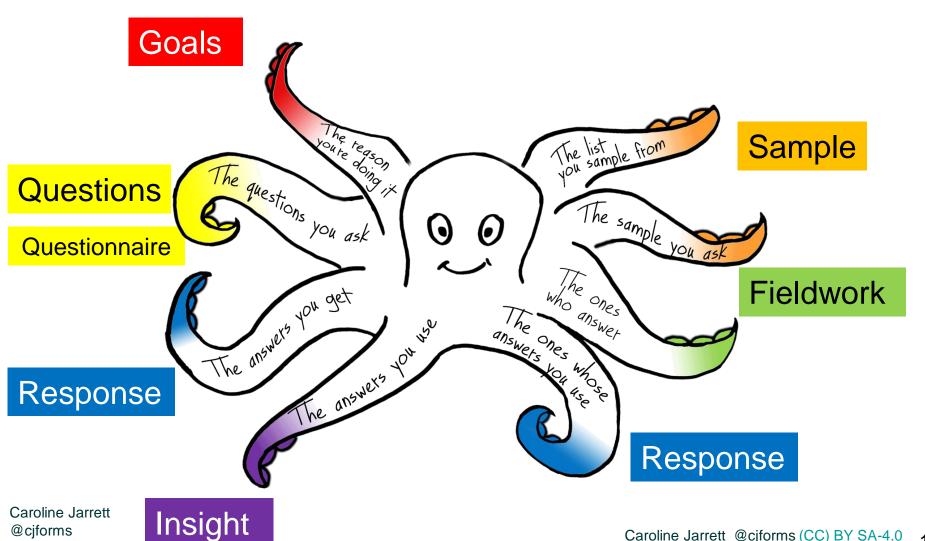


Choose whichever method you like, but you must make the choice when you decide on the goals of the survey

### The survey process



#### All the topics are connected



# The aim is to get the best number you can, within the resources you have

What you want to ask about

The reason you're doing it

The questions you ask

The answers you get

The answers you use

Who you want to ask

The list that you sample from

The sample you ask

The ones who answer

The ones whose answers you can use

# The aim is to get the best number you can, within the resources you have

Who you want to ask What you want to ask about The list that you sample from The reason you're doing it The sample you ask The questions you ask The ones who answer The answers you get The ones whose answers you can use The answers you use

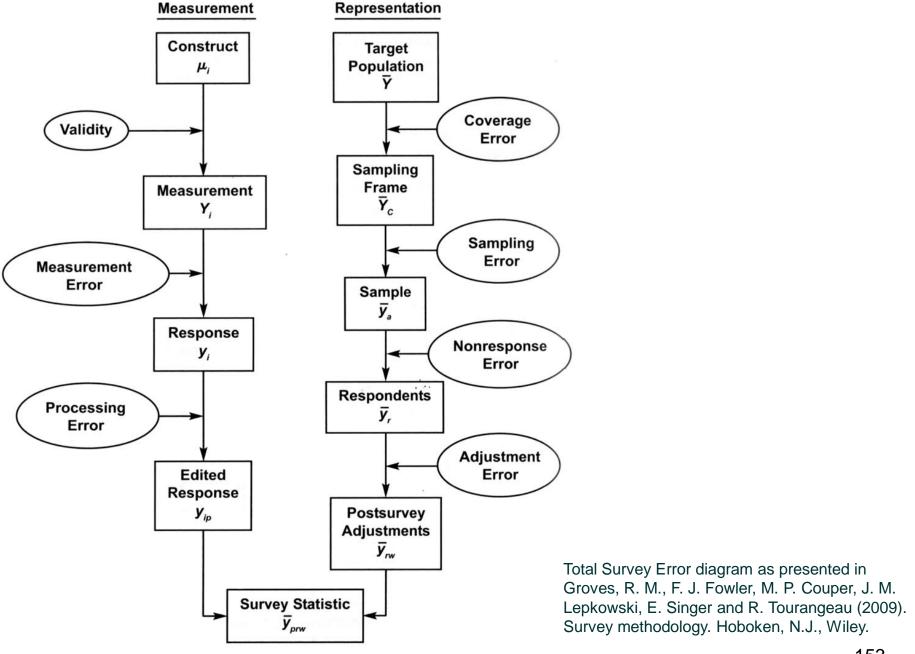


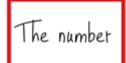
Figure 2.5 Survey life cycle from a quality perspective.



Asking one person the right question

is better than

Asking 10,000 people the wrong question

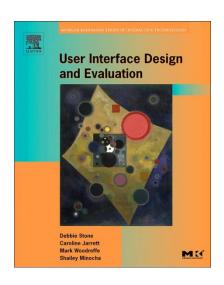


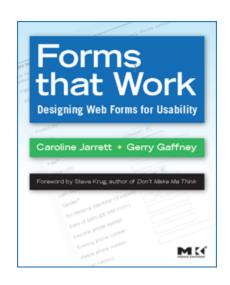
#### Should I do this survey?

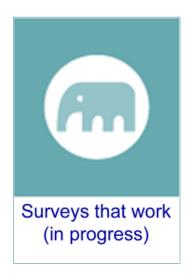
Do I know how I'm going to use the answers? Yes Is a survey the right way to get the answers? Do I have time to test and to iterate? Yes Do people have answers to these questions? Yes Yes Do people want to respond to my request? Yes

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### Some tests to make sure it's a good one

Goals	Sample	Questions	Fieldwork	Responses	Insights
Establish your goals for the survey	Decide who to ask and how many	Test the questions and build the questionnaire	Run the survey from invitation to follow-up	Clean the data	Analyse and present the results
		1			
Know the decisions that you'll	Check that the list of people to ask is	Test the questions in cognitive	Do a pilot study (again) to check	Check the responses as they arrive	Ask: 'so what'?
make	representative	interviewing	everything from	Check that the	Iterate and improve
Find out what people want to tell you by interviewing	Find out your response rate with a pilot study	Usability test of the questionnaire	invitation to insights	answers are representative	7

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